

CLAIMS

1. An apparatus for manufacturing nano-carbon, comprising:
 - a target holding unit which has a contact surface being in contact with a surface of a graphite target and movably holds said graphite target by frictional force generated between the
 - 5 contact surface and said surface of said graphite target;
 - a light source which irradiates light to said surface of said graphite target;
 - a moving unit which drives said target holding unit so as to move said graphite target held by said a target holding unit
 - 10 relatively to said light source, to move an irradiation position of said light on said surface of said graphite target, and to move said graphite target by the frictional force generated between said contact surface and said surface of said graphite target; and
 - 15 a recovery unit which recovers nano-carbon obtained from said light irradiation.
2. An apparatus for manufacturing nano-carbon, comprising:
 - a target holding unit which has a contact surface being in contact with a surface of a cylindrical graphite target and movably holds said graphite target by frictional force generated
 - 5 between the contact surface and said surface of said graphite target;
 - a light source which irradiates light to said surface of said graphite target;

a moving unit which drives said target holding unit so as
10 to move said graphite target held by said target holding unit
relatively to said light source, to move an irradiation position
of said light on said surface of said graphite target, and to
rotate said graphite target around a central axis by the
frictional force generated between said contact surface and said
15 surface of said graphite target; and

a recovery unit which recovers nano-carbon obtained from
said light irradiation.

3. The apparatus for manufacturing nano-carbon as set forth
in claim 2,

wherein said target holding unit has two cylindrical
rollers which have rotation axes substantially parallel to said
5 central axis of said graphite target and hold said graphite
target between positions parallelly disposed each other; and

said moving unit rotates said graphite target around said
central axis by said frictional force generated between said
contact surface of said roller and said surface of said graphite
10 target by rotating said roller around said rotation axis.

4. The apparatus for manufacturing nano-carbon as set forth
in any one of claims 1 to 3,

wherein said moving unit drives said target holding unit
so that the irradiation position of said light irradiated to
5 said surface of said graphite target covers over almost the
entire area of said surface of said graphite target.

5. The apparatus for manufacturing nano-carbon as set forth in any one of claims 1 to 4,

wherein said moving unit is configured so as to move said irradiation position while maintaining an irradiation angle of said light substantially constant, at the irradiation position of said light on said surface of said graphite target.

6. The apparatus for manufacturing nano-carbon as set forth in any one of claims 1 to 5,

wherein said target holding unit comprises one of stainless steel or ceramics, alternatively a metal deposited with carbon on a surface.

7. The apparatus for manufacturing nano-carbon as set forth in any one of claims 1 to 6,

wherein said nano-carbon is carbon nano horn assemblies.

8. A method of manufacturing nano-carbon, comprising:
irradiating light to a surface of a graphite target; and
recovering nano-carbon generated in said irradiating light,

wherein said irradiating light includes irradiating said light while holding said graphite target by a contact surface disposed in contact with said surface while moving said graphite target by frictional force between said surface and said contact surface.

9. A method of manufacturing nano-carbon, comprising:
irradiating light to a surface of a cylindrical graphite target while rotating said graphite target around a central axis; and

5 recovering nano-carbon generated in said irradiating light,

wherein said irradiating light includes irradiating said light while holding said graphite target by a contact surface disposed in contact with said surface and while rotating said
10 graphite target around the central axis by frictional force between said surface and said contact surface.

10. The method of manufacturing nano-carbon as set forth in claim 9,

wherein said contact surface is disposed in contact with a side surface of said graphite target.

11. The method of manufacturing nano-carbon as set forth in any one of claims 8 to 10,

wherein, in said irradiating light to the surface of said graphite target, said light is irradiated so as to cover over
5 almost the entire area of said surface of said graphite target while moving the irradiation position of said light.

12. The method of manufacturing nano-carbon as set forth in any one of claims 8 to 11,

wherein, in said irradiating light, said light is irradiated so that the irradiation angle of said light to said surface of said graphite target is substantially constant.

13. The method of manufacturing nano-carbon as set forth in any one of claims 8 to 12,

wherein said irradiating light includes irradiating a laser beam.

14. The method of manufacturing nano-carbon as set forth in any one of claims 8 to 13,

wherein said recovering nano-carbon includes recovering carbon nano horn assemblies.